

B2
Control
PB C1

a second region provided on the polymeric surface of the first region, the second region having tubular mesopores,

wherein the tubular mesopores are oriented towards a first direction parallel to the surface and the polymeric surface has been subjected to an alignment control treatment.

B2

3. (Twice Amended) The mesostructured material according to claim 1 or 2, wherein polymer chains of a polymeric compound of the polymeric surface are oriented in a second direction.

Sub
C1
B3

13. (Twice Amended) A mesostructured material comprising:
a first region having a polymer material surface in which chains of the polymer material are oriented in a first direction parallel to the polymer material surface;
and

a second region provided on the polymer material surface of the first region, the second region having tubular mesopores,

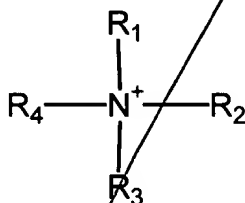
wherein the tubular mesopores are oriented in a second direction nearly perpendicular to the first direction, and the oriented tubular mesopores are formed on the polymer material surface by locating silica outside of an oriented surfactant micelle structure of which orientation is determined by parallel accommodation of molecules of the surfactant on the chains of the polymer material through chemical interaction.

B4

14. (Amended) The mesostructured material according to claim 13, wherein the surfactant is a cationic surfactant or nonionic surfactant.

15. (Amended) The mesostructured material according to claim 14, wherein the cationic surfactant is a quaternary alkylammonium salt.

16. (Amended) The mesostructured material according to claim 15, wherein the quaternary alkylammonium is represented by the following structural formula:



wherein R_1 to R_3 are independently a methyl group or ethyl group and R_4 is a C_{10} to C_{18} straight chained alkyl group.

17. (Amended) The mesostructured material according to claim 16, wherein the R_4 is a C_{12} to C_{16} straight chained alkyl group.

18. (Amended) The mesostructured material according to claim 14, wherein the nonionic surfactant is an alkylamine or a surfactant containing polyethylene oxide as a hydrophilic group.

19. (Amended) The mesostructured material according to claim 13, wherein the polymer material surface is comprised of a Langmuir-Blodgett film.

20. (Amended) The mesostructured material according to claim 13, wherein the polymer material is at least one polymer selected from the group consisting of polyethylene, nylon, polybutylene terephthalate, polyethylene terephthalate, polyester, polyimide and parylene polyparaxylilene.

21. (Amended) The mesostructured material according to claim 20, wherein the polymer material is polyimide.

22. (Amended) The mesostructured material according to claim 13, wherein the mesopores are hollow.

23. (Amended) The mesostructured material according to claim 13, wherein the polymer material surface is constituted of a film of the polymer material, the film being arranged on a substrate, and the substrate is made of silicon oxide.

48. (Twice Amended) A mesostructured material comprising:
a first region having a polymeric surface; and
a second region provided on the polymeric surface of the first region, the second region having tubular mesopores,
wherein the tubular mesopores are oriented in a direction parallel to the surface, and the direction is determined by a direction of a rubbing treatment of the polymeric surface.

50. (Amended) A mesostructured material comprising:
a first region having a polymeric surface comprising a polymeric compound;
and
a second region provided on the polymeric surface of the first region, the second region having tubular mesopores,
wherein the tubular mesopores are oriented in a direction parallel to the surface, and the direction is determined by an orientation direction of the polymeric compound's polymer chain.